

RF EXPOSURE EVALUATION METHOD

FCC ID: S29WKRC-H9

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where } f(\text{GHz}) \text{ is the RF channel transmit frequency in GHz}$$

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Maximum measured transmitter power.

Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	g	2412	Ant1	5.93	0	5.93	30	Pass
		2437		5.55	0	5.55	30	Pass
		2462		5.00	0	5.00	30	Pass
		2412	Ant1	5.93	0	5.93	30	Pass
			Ant2	5.00	0	5.00	30	Pass
			Sum	8.50	0	8.50	30	Pass
	n20	2437	Ant1	5.90	0	5.90	30	Pass
			Ant2	5.05	0	5.05	30	Pass
			Sum	8.50	0	8.50	30	Pass
		2462	Ant1	5.85	0	5.85	30	Pass
			Ant2	5.00	0	5.00	30	Pass
			Sum	8.45	0	8.45	30	Pass

Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	5.45	0	5.45	30	Pass
		5785		5.48	0	5.48	30	Pass
		5825		5.50	0	5.50	30	Pass
	n20	5745		5.45	0	5.45	30	Pass
		5785		5.50	0	5.50	30	Pass
		5825		5.51	0	5.51	30	Pass
	n40	5755		5.45	0	5.45	30	Pass
		5795		5.47	0	5.47	30	Pass

Remark: The best case gain of the antenna is 5.51dBi.

5.51dBi logarithmic terms convert to numeric result is nearly 3.56

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$

2.4G wifi

Frequency (MHz)	Range	tune up max power (dBm)	[(max. power of channel, including tune-up tolerance, mW)	(min. test separation distance, mm)]	[f(GHz)]	Result	Limit
2412	7~9	9	7.943	5	2.412	2.47	3
2437	7~9	9	7.943	5	2.437	2.48	3
2462	7~9	9	7.943	5	2.462	2.49	3

5.8G wifi

Frequency (MHz)	Range	tune up max power (dBm)	[(max. power of channel, including tune-up tolerance, mW)	(min. test separation distance, mm)]	[f(GHz)]	Result	Limit
5745	4~6	6	3.981	5	5.745	1.91	3
5785	4~6	6	3.981	5	5.785	1.92	3
5825	4~6	6	3.981	5	5.825	1.92	3

The test Result is less than 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

Conclusion: No SAR is required.